
Mātauranga Whakauka Taiao

Environmental Education for Sustainability

Mahere Rautaki
Strategy and Action Plan
2017 – 2021



*Our agencies are committing to working together,
and with others, to help all New Zealanders learn how
they can take action to address the sustainability
challenges we face locally and globally*



Kupu whakataki

Foreword

Ko te manu e kai ana i te miro, nōna te ngahere. Engari, ko te manu e kai ana i te mātauranga, nōna te ao

The one who partakes of the flora and fauna, that will be their domain. The one who engages in education, opportunities are boundless

Kei ngā mana, kei ngā reo, rau rangatira mā; tēnā koutou, tēnā koutou, tēnā tātou katoa.

This new Environmental Education for Sustainability Strategy refreshes the Government’s approach across agencies to ensure we equip our young people with the understanding, skills and motivation they need to help address New Zealand’s many environmental challenges. We are proud to have produced the first strategy in 1998 but this renewal is required to reflect new priorities and approaches. We are putting more emphasis on practical, hands-on environmental education. We want stronger linkages with the Government’s agenda on science and innovation.

It is a more inclusive approach, reflecting the growth in Te Taha Māori. We also want to build a more collaborative culture among New Zealanders to help find solutions to our environmental problems.

The Strategy focuses on the key environmental challenges of climate change, water quality, biodiversity protection and waste. It recognises that informed and active communities are essential if we are to find lasting solutions. To reach a low greenhouse gas emissions future, each one of us needs to work on ways to cut our emissions. To retain our unique biodiversity, we need to engage

nationwide in predator and pest control. To enhance water quality, we need both town and country to reduce pollutants getting into our waterways. To reduce waste, we need community commitment and innovative technologies.

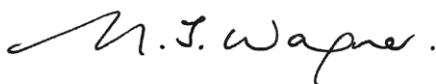
We want to acknowledge and enable tangata whenua in their role as kaitiaki. We recognise the scale of the work and activity that is happening across New Zealand in recognising and growing the Māori perspective in environmental education. We aim to build on this to encourage more collaboration and action and create space for Māori wisdom and knowledge to grow.

Implementation of this strategy will help the Government achieve its environmental goals. Our agencies will be working together to focus on key overarching aspirational environmental goals, such as Predator Free New Zealand, as ‘rallying points’ for New Zealand’s environmental efforts. As a nation, we need to recognise the key challenges we must face together and where we can effectively take a global leadership position.

The Government is only part of the picture. We encourage individuals, communities and organisations to think about the part they can play in creating a healthy environment and prosperous society in which we can all thrive.

Environmental education for sustainability requires a uniquely Aotearoa New Zealand approach that will grow future environmental leaders and active environmental stewardship in this country. This document sets out a 4-year plan to support a longer-term vision.

Through this Strategy and Action Plan, we are committing to working together and with others to help all New Zealanders learn how they can take action to address the sustainability challenges we face locally and globally.



Hon Nicky Wagner
Associate Minister of Conservation



Hon Dr Nick Smith
Minister for the Environment

**He aha te mātauranga
whakauka taiao?**

**What is environmental
education for sustainability?**



Environmental education for sustainability (EEfS) is more than just communicating information about the environment and the ways in which it is currently threatened by human activity.

EEfS helps individuals and communities to grow their understanding, skills and motivation to work together to develop solutions, act as kaitiaki, and advocate for a healthy environment and society. It also empowers individuals and communities to make decisions that are relevant to them.

The relationship between the natural environment and tangata whenua is core to the practice of kaitiakitanga. As well as developing practical skills and scientific understanding, EEfS incorporates a strong human element, including respecting a diversity of perspectives, reducing inequality and promoting cooperative effort.

Participate in active sharing and collaboration with others to share and celebrate learning, actions and success

Te Taha Whānau

Learn and practise new skills to identify and help solve environmental challenges

Te Taha Tinana

Behaviours and actions that lead to positive environmental change

Grow knowledge and understanding of different perspectives on the environment and apply new thinking to environmental challenges

Te Taha Hinengaro

Develop values and attitudes of concern for the environment, while experiencing outdoor learning in the environment

Te Taha Wairua

EEfS is a holistic approach to creating a nation of innovative and motivated people who think and act sustainably.

Te Whare Tapawhā – a holistic health model developed by Professor Mason Durie – is very relevant to the interwoven dimensions of best practice EEfS. It incorporates four elements:

- › **Te Taha Wairua (the spiritual dimension)** relates to the importance of people having awareness, sensitivity to and personal connection with the environment.
- › **Te Taha Hinengaro (the dimension of thought)** relates to the importance of people having knowledge and understanding of the environment and environmental challenges, and thinking for the future.
- › **Te Taha Tinana (the physical dimension)** relates to the importance of people having skills to identify and help resolve environmental challenges.
- › **Te Taha Whānau (the family dimension)** relates to the importance of valuing community health and taking collective action.

**He aha ai he kaupapa
whakahirahira te mātauranga
whakauka taiao?**

**Why is environmental
education for
sustainability important?**



Toitū te marae a Tāne

Toitū te marae a Tangaroa

Toitū te tangata

When the realm of Tāne and the domain of Tangaroa are sustained, so too are people

The local and global environment is the source of human health and well-being, and connection with the environment is a fundamental requirement for vibrant and healthy communities.

Healthy ecological systems in the environment provide all species, including humans, with crucial ecosystem services.

Simple observations through to rigorous research have clearly shown that human activities are damaging the environment. The way in which we live our lives has ongoing impacts on our environment and society that are unsustainable. This is happening at a local, regional and global level. The vast majority of the country's income, as measured by gross domestic product (GDP), is generated by

industries that are dependent on the sustainable use of our environment, such as tourism and primary industries. As our population and economy grow, pressure on the environment will increase unless we learn new ways to reduce that pressure.

In Aotearoa New Zealand, we use many approaches to manage the environment and ensure a healthy and prosperous society. We need smart policy and legislation, good knowledge about the environment, and responsible behaviour by individuals and communities. Our society and economy also strongly rely on global resources, so we all have a part to play as responsible global citizens and to live up to the international agreements that New Zealand has entered into.

Education has a critical role as it strengthens the ability of individuals and communities to positively influence the environment and society. Through informed choices, action and innovation, people can contribute to redesigning how we live and work – and New Zealand could lead the way in developing an economy that is based on sustainability and a thriving environment. Imagine growing generations of New Zealanders who understand environmental issues and actively contribute to a healthy and sustainable future for all. EEFS provides us with the opportunity to create that positive future for Aotearoa New Zealand.

Mātauranga Māori

Mātauranga can be defined as 'the knowledge, comprehension or understanding of everything visible and invisible existing in the universe'.

When we talk about mātauranga Māori, we refer to the knowledge that Māori have, but this also encompasses the Māori ways of knowing, seeing, hearing, feeling and understanding, and their connectivity to the heartbeat of the land, water, flora and fauna. It can therefore be said that mātauranga Māori is that body of knowledge that is inclusive of the traditional Māori world view, perspectives, creativity and cultural practices.

The traditional Māori view of the world is holistic

Mātauranga Whakauka Taiao – He Mahere Rautaki

Environmental Education for Sustainability Strategy 2017 – 2027



Mai i te kōpae ki te urupā, e tātou ako tonu ai

From the cradle to the grave, we are forever learning

Government has developed this Strategy to guide government action and support all New Zealanders with an interest in sustainable communities. It acknowledges that everybody has a role to play in determining the future of our country, and that we must work together to make informed decisions and take action, both as individuals and within communities.

To tātou tirohanga whakamua

Our vision

Manako katoatia a Aotearoa i tō tātou piringa ki te taiao me tōna whakaukatanga

All New Zealanders value a connection to our environment by actively working together for a sustainable future

Nga kaupapa matua

Priority areas

2017 – 2027

Three priority areas guide where government agencies should direct their efforts over the next 10 years to target opportunities and create momentum.

1. Enable coordination of EEFS:

Provide co-ordination and strengthen networks. Promote engagement and celebrate exemplary practice and partnerships. Encourage collaboration and research. Support effective evaluation and monitoring.

2. Grow capability and capacity in EEFS delivery:

Support the development of guidelines and tools, and initiatives that enable ongoing growth of the EEFS sector. Facilitate professional learning and development.

3. Strengthen pathways in sustainable practice:

Strengthen pathways in sustainable practice including opportunities in tertiary education and training. Enhance employers' awareness of the benefits of EEFS. Support initiatives that empower young leaders and entrepreneurs. Ensure equity of access to EEFS.

Ngā mātāpono

Guiding principles

These principles set out how we will go about achieving this vision – not only government agencies, but all of us with a shared role in environmental education.

Growing
knowledge,
skills and
understanding

Sharing
values

Taking
collective
action

Thinking
for the
future

Adopting a
uniquely
New Zealand
perspective

Sharing values

Fostering kaitiakitanga, personal responsibility and citizenship through:

- › Emphasising care for our biodiversity, land, fresh water, marine environment, air, atmosphere and climate
- › Encouraging locally relevant, place-based experiences that develop the knowledge, attitudes and skills required to think and act sustainably
- › Enabling transformative action and self-reflection for sustainability.

Thinking for the future

Emphasising a vision for the future and life-long learning for all through:

- › Encouraging intergenerational learning
- › Empowering young people to determine a sustainable future.

Growing knowledge, skills and understanding

Developing social, cultural, economic and scientific understanding through:

- › Enhancing knowledge and mātauranga Māori relating to sustainability and environmental issues
- › Acknowledging and respecting world views
- › Problem-solving, critical thinking and systems thinking
- › Making connections between social, cultural, economic and environmental systems.

Taking collective action

Enabling increased collaboration and the tangata whenua role as kaitiaki through:

- › Encouraging community engagement and a sense of belonging
- › Creating partnerships and collaborations for collective impact
- › Encouraging better use of limited resources.

Adopting a uniquely New Zealand perspective

Providing real-life contexts for learning about sustainability through:

- › Exploring local or national environmental issues, such as freshwater quality, Predator Free New Zealand or the impacts of climate change on our island nation
- › Giving effect to the partnership between all peoples of New Zealand as embodied in the Treaty of Waitangi.

Kids Greening Taupō

Five Taupō schools are working together and with their community to increase biodiversity and bring birds back into town. The programme is about giving students the skills to lead conservation – not only across the curriculum, but across all levels and age groups.

Kids Greening Taupō is based on the Department of Conservation’s (DOC’s) collaborative community education model, which involves kindergartens, schools and community partners working together to achieve a shared conservation and education vision. The power behind the programme is in providing opportunities for engaging Taupō children and young people in real local restoration projects and supporting teachers to use these authentic learning contexts.

The project is founded on the goals of the local restoration group Greening Taupō, but students are the ‘heart’ of the project, working with each other and community partners to meet their joint vision. Students connect with local green spaces to apply their knowledge, skills and values to real-life opportunities for project planning, problem solving and collaboration. Students are active leaders, decision makers and contributors in their local community, and are making a real difference.



Their vision is:

Kids Greening Taupō will enable young people to participate in real life projects with opportunities to connect in a culturally responsive way to their local environments and communities to increase biodiversity, student leadership and educational outcomes, shaping the future of our Place, now.

DOC has worked closely with the Kids Greening Taupō project to develop an effective and robust model that others can use to develop similar programmes in their communities. The key principles of the collaborative community education model are:

- › Authentic teaching and learning contexts
- › Collaboration – across year levels, between schools and with the wider community
- › Student led – an ethos of students being in the ‘driver’s seat’
- › Vertical approach – a continuous, cross-curricular learning journey, as students move from kindergarten through to secondary school
- › Professional development and support for teachers

TOP
Taupō Primary School students applying their learning in a local restoration site. Photo: Kids Greening Taupō

INSET
Experiencing invertebrates. Photo: Kids Greening Taupō

BOTTOM
Bush Kindergarten participants exploring soil inhabitants in their local environment. Photo: Kids Greening Taupō





Looking at moths through a Māori lens

Tamariki across the South Island are seeing the night creatures of Aotearoa through Māori eyes, thanks to a new project connecting primary schoolchildren with mātauranga Māori and science through moths.

AHI PEPE | MOTHNET is a collaboration between Landcare Research, Orokonui Eco-sanctuary, Ngāi Tahu, the Geography Department and Te Tumu (University of Otago), and primary and secondary schools and kura across the South Island.

Literally translated, the name means ‘moth fire’ and references a whakataukī (proverb) by Te Whiti o Rongomai about the light of a fire attracting moths.

This Unlocking Curious Minds project evolved from last year’s Participatory Science Platform-funded project ‘Shedding Light on the Night’. However, Dr Barbara Anderson and her team from Landcare Research developed some parts from scratch with a Māori focus.

The project weaves culture, science and language together. As well as learning about mātauranga Māori, including the whakapapa of the moths and their place in the stars, the students learn about the science behind why moths are important, including their role in the ecosystem and as ecological indicators of environmental change, habitat loss, climate change and light pollution.

A significant development was the writing of the field guides from a Māori perspective. Ka Puka Whakamarama o Te Pepe Nui – Beginners’ Guides to the Macro Moths are the first field guides in New

Zealand to be written in Kai Tahu dialect, with an English translation available.

As Barbara pointed out, these are not just translations from English materials: ‘We realised that there are extremely few science resources in Te Reo Māori in kura and translations of English materials offer little context or connection to everyday life’.

The tamariki at Te Kura Kaupapa Māori o Ōtepoti (Dunedin) are helping the scientist understand the Māori perspective; and Dr Anderson is helping the tamariki to improve their knowledge and foster an interest in science.

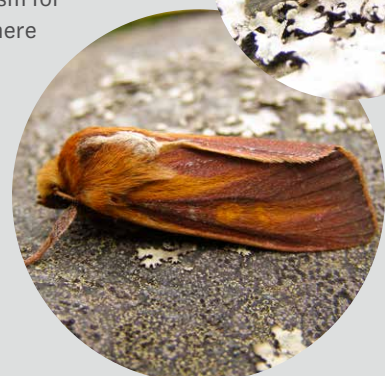
This project teaches students how to apply scientific thinking, processes and methods; and strengthens and restores connections between their culture and science. Science is taught in a real context so that students can better understand, appreciate and therefore take care of our native moths.

There are almost 2000 species of moths in New Zealand, with 90% of these found nowhere else in the world. This is one of the highest rates of endemism for any taxonomic group anywhere in the world, yet we know very little about them. The project uses internationally recognised moth-monitoring techniques to evaluate the effectiveness of vegetation restoration in restoring ecosystem function.

TOP
Dr Anderson, students from Te Kura Kaupapa Māori o Ōtepoti and friends preparing to set up the Ahi Pepe MothNet portable Heath Moth Trap.
Photo: Gregory Nelson

BELOW RIGHT
Physetica caerulea.
Photo: Robert Hoare, Landcare Research

BELOW LEFT
Tmetolpota purdii (Pākākā). Photo: Robert Hoare, Landcare Research



Mahere Rautaki

**Four-year Action Plan
2017 – 2021**



This is the first action plan for the EEFS Strategy, and covers the next 4 years. The Department of Conservation, Ministry for the Environment and Ministry of Education have jointly led the development of this Action Plan, with participation from a number of other government agencies, and will continue to drive it forward.

This Action Plan recognises the need to engage all New Zealanders, and sets out how government agencies will work collaboratively with communities, local government, whānau, hapū and iwi, research institutes, non-governmental organisations (NGOs), businesses, schools, kura, tertiary institutions and volunteers.

The Action Plan requires agencies to help build the solid foundation that is needed to deliver a significant change in EEFS in New Zealand. It identifies four short-term objectives, with associated activities, that will provide the right level of focus and coordination to take us closer to our vision.

The Action Plan's objectives acknowledge that there is already a great deal of kaitiaki and environmental education activity happening across Aotearoa New Zealand. A strong focus of this initial Action Plan is on harnessing all the good things that are already taking place – learning from these and increasing their impact.

The actions it contains will help to draw all of the individuals and organisations that are currently doing good work together into a cohesive and coordinated group that encourages shared learning and supports the achievement of our vision for New Zealanders.

As government agencies achieve the short-term objectives set out in this Action Plan, our focus will change, and future action plans will reflect progress and improved knowledge. With stronger networks and greater collaboration, these future action plans will place more emphasis on identifying opportunities to grow Aotearoa New Zealand's capability and capacity to deliver EEFS for New Zealanders of all ages in all communities.

A brief history

In 1998, government agencies set priorities for environmental education in New Zealand – and this focus remains nearly two decades later.

The relationships and issues between environmental, social and economic systems are still complex. But the ways in which we learn, communicate and take action for our environment have evolved and enable wider networking. With increasing pressure being placed on our natural systems, more emphasis needs to be placed on working together to achieve common goals.

In 2016, the Hon Nicky Wagner released a proposal to refresh New Zealand's environmental education strategy, seeking the views of stakeholders to help shape a new strategy into the future.

Feedback was received from a diverse range of individuals, groups and organisations, and from every region of New Zealand.

This EEFS Strategy is the result of this work and contains the first action plan, which sets out how agencies will work towards our shared vision over the next 4 years.

Mahere Rautaki

Strategy & action plan

Growing knowledge, skills and understanding

Sharing values

Taking collective action

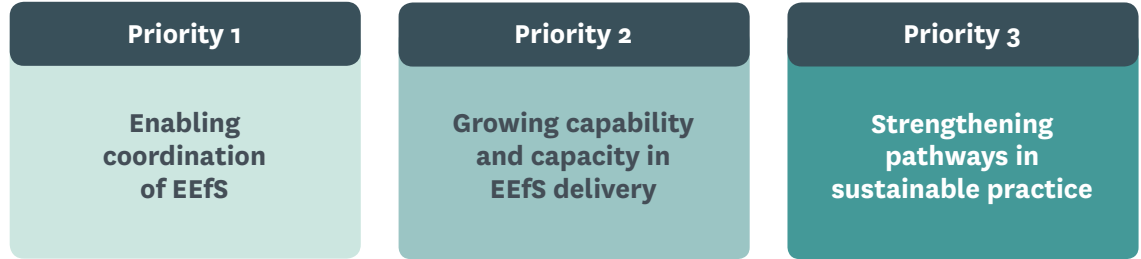
Thinking for the future

Adopting a uniquely New Zealand perspective

Vision for environmental education for sustainability in New Zealand

All New Zealanders value a connection to the environment by actively working together for a sustainable future

Priority areas for government agencies to help achieve the vision 2017–2027



Provide coordination and strengthen networks. Promote engagement and celebrate exemplary practice and partnerships. Encourage collaborations and research. Support effective evaluation and monitoring.

Support the development of guidelines and tools, and initiatives that enable ongoing growth of the EEfS sector. Facilitate professional learning and development.

Promote opportunities for EEfS in tertiary, vocational and non-formal education. Enhance employers' awareness of the benefits of EEfS. Support initiatives that empower young leaders and entrepreneurs. Ensure equity of access to EEfS.

Four-year focus for this first Action Plan (2017–2021)

Objective 1

Celebrate success to raise awareness and demonstrate value

Objective 2

Strengthen networks to foster collaborative action

Objective 3

Build capability and capacity to engage people

Objective 4

Ensure progress of the Action Plan and measure its impact

Objective 1

Whakanuia te angitu, whakaara te mōhiotanga, whakaatu te uara

Celebrate success to raise awareness and demonstrate value



Danny Campbell (with dad Andy Campbell looking on) taking part in the Experiencing Marine Reserves programme at the Poor Knights Islands Marine Reserve. Photo: Darryl Torckler

Objective 1

*Kei a tātou katoa
te oranga o ngā
taonga koiora*

*The survival of our
living treasures is
up to us*

This first objective establishes a strong platform for the future. As New Zealanders, we need to celebrate what we are doing well, demonstrate the positive impact that engaging in EEFS can have, and inspire people to participate and collaborate.

Increasing awareness across New Zealand about how EEFS outcomes benefit our environment, society, culture and economy will go a long way towards embedding EEFS – the need to establish EEFS will no longer be talked about, it will simply become the way we do things.

This step towards our vision seeks to ensure that people are aware of what is currently happening and why it is important. We can support this by showing the tangible and intangible benefits to communities, businesses and environments. Celebrating successful practices and partnerships in EEFS can show others what ‘good EEFS’ looks like.

Outcome for objective 1

New Zealanders know what best practice EEFS is, understand the value of EEFS and want to engage in it

KEY ACTIONS

Celebrate exemplary practices and partnerships

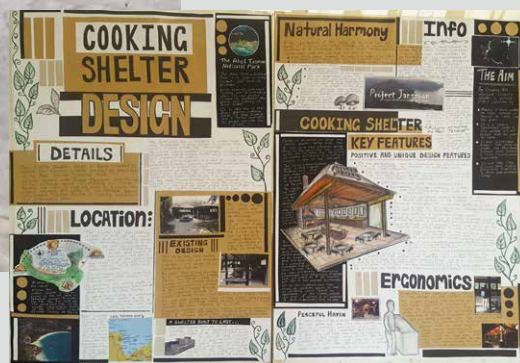
Government agencies will champion environmental education by demonstrating how EEFS can be applied and the benefits it brings to New Zealand. Agencies will work in partnership with others to identify what best practice looks like and to bring this to life so that people know what can be achieved.

Best practice examples will be identified in a wide range of sectors and contexts – reaching into areas of established practice and also targeting new audiences.

Leverage existing programmes

The first step will be to identify a targeted set of programmes where connections can be made with EEFS. Predator Free 2050, freshwater improvement initiatives, the National Science Challenges, Primary Growth Partnerships, climate change initiatives, threatened species programmes, and government environmental funds, such as Curious Minds and the Community Environment Fund, are all examples of programmes that can support education about the environment and actions to support sustainability.

We will encourage collaboration between agencies and private sector funders to strategically invest in initiatives that will help groups to develop a sustainable approach to resourcing and will deliver significant environmental benefits. We will promote EEFS programmes that involve iwi, hapū and whānau, and honour traditional kaitiaki status and knowledge, and will support them in working and reporting in Te Reo Māori.



Motueka High School pioneers cross-curricular education for conservation

A collaboration between Project Janszoon, DOC and Motueka High School has taken the New Zealand Curriculum into the field.

Motueka High School is taking part in the DOC/ Janszoon ‘Adopt a Section’ programme, which gives schools the opportunity to adopt a conservation site and contribute in a variety of ways to conservation work that is relevant to that specific area. In return, DOC helps the school to match different curriculum areas to the site.

The way in which Motueka High School has pioneered the application of different subject areas in a conservation context has been impressive. All Year 11 through 13 students have the opportunity to earn National Certificate of Educational Achievement (NCEA) credits across a broad range of subjects,

including geography, biology, physics, graphics, outdoor education, music and science, when they visit and work on the site.

For example, the physics exploration which included a ‘star party’ was held for Year 12 students who were working towards NCEA credits in Earth & Space Science. A member of the local astronomical society attended. Graphics students have also been working on various projects, including designing new huts, signage and wētā motels.

More subjects are added each year for students to benefit from this fun, hands-on and meaningful learning environment.

TOP
Physics star party at Anchorage Beach.
Photo: Janszoon.org

INSET TOP
Year 12 Biology students earning their NCEA credits.
Photo: Janszoon.org

INSET BOTTOM
Year 13 Graphics cooking shelter design. Photo: Janszoon.org

Kirehe kino kore

Predator Free 2050

In 2016, the Government announced the intention to make New Zealand predator free by 2050. This is an ambitious goal to rid New Zealand of the most damaging introduced predators that threaten our nation's natural taonga, our economy and the primary sector.

The announcement, which included funding and the establishment of the new organisation Predator Free 2050 Ltd, resonated deeply with the public, reflecting New Zealanders' strong attachment to our native species and landscapes. Communities are already working towards this goal across New Zealand. For example, 'Halo' projects are building on existing conservation initiatives to extend protection beyond sanctuary fences, enabling threatened species populations to expand into wider areas.

To make the substantial advances that are necessary to recover our threatened species and prevent extinctions, we need to work together. Government agencies cannot achieve this on their own. We need to find new ways to engage people and rekindle their concern. We need to empower iwi to regain their role as kaitiaki. We need to mobilise funding and in-kind support, promote partnerships, and encourage cooperation across existing conservation programmes.

› DOC Threatened Species Strategy



Education will be a vital part of developing momentum and gaining support, buy-in and participation from all New Zealanders to achieve this predator-free vision. Predator Free 2050 is developing a toolkit to help communities carry out predator free-related projects, seek information and connect with others. For kindergartens, schools and tertiary institutions, Predator Free 2050 offers a rich context for cross-curricular learning and for forging connections within their community.

TOP
Silvereye/tauhou.
Photo: JJ Harrison
(CC BY-SA 2.0)

MAIN
New Zealand
dotterel/
tūturiwhatu. Photo:
Herb Christophers



Objective 2

**Whakakaha nga whatunga
i roto i te ngātahitanga**

**Strengthen networks to foster
collaborative action**



Schoolchildren from Pongaroa planting trees on the school grounds. Photo: Sandra Burles

Objective 2

*Ehara taku toa i
te toa takitahi
Engari, he toa
takitini*

*Success is not the
work of one, but
the work of many*

EEFS is about a whole of community approach to building knowledge and taking action for sustainability. A new generation of partnerships have established networks amongst education providers, iwi, businesses, NGOs, communities and other organisations – all working together to engage in meaningful, high-quality EEFS.

There are also a large number of organisations doing good things – but not everyone knows about them. We want to move towards a cohesive and coordinated approach where people can learn from each other and everyone has a chance to participate.

We all need to focus on building networks at a local, national and international level. Strengthening and widening networks amongst those engaging in EEFS will produce tangible benefits that support the step-change we want to see.

By sharing ideas and inspiring people to engage in EEFS, we can all learn from what is being done well, foster a shared understanding of best practice and reduce the risk of duplicating effort.

Social media, information technology (IT) innovation, virtual communities and instant global connections are the norm for many people. We need to capitalise on these rapidly evolving ways of connecting to engage people in EEFS. This will increase our reach and connect people up, making funding and development opportunities accessible to a greater number and wider range of groups.

Outcome for objective 2

New Zealand has strong networks that foster collaborative action and support high-quality EEFS

KEY ACTIONS

Develop our understanding of what makes existing EEFS networks successful

To inform our work on building and strengthening networks, we will first gain a good understanding of the key attributes of successful networks and local community groups operating in this context.

We will review existing programmes and share the findings with other agencies and our partners to learn from experience. We will capture this information in a central repository and continue to build on it over time.

Strengthen and widen networks amongst those involved in EEFS

We will work with those who are already involved or would like to be involved in EEFS to determine the best ways to support and strengthen their work, as well as promoting best practice to others. We will provide potential funders with frameworks for investing in EEFS to support their decision making. This will make it easier for them to understand which high-

quality opportunities they can be involved in. We will strengthen our international relationships with organisations such as the North American Association for Environmental Education, the Australian Association for Environmental Education, the Global Environmental Education Partnership and UNESCO. This will allow us to learn from each other and may also present opportunities for collaboration.

We will work with existing groups that bring together passionate people engaged in EEFS. There are opportunities to provide support to existing forums such as implementation conversations for the Conservation and Environment Science and Primary Sector Science roadmaps, and the biennial conference of the New Zealand Association for Environmental Education, which will enhance opportunities for networking and sharing research and practice widely.

Use new and evolving ways to connect

We will identify and prioritise how emerging and rapidly evolving technology and communication channels can be harnessed to promote and engage people in EEFS.

Rural communities taking action – the Forest Bridge project



The University of Auckland's Department of Statistics has developed the CatchIT system to help citizens manage predator control trap lines and share their results online. This system allows a trapper to enter the location of their trap lines, bait stations and tracking tunnels using the Global Positioning System (GPS), and collate their results into meaningful maps, graphs and statistics.

The Ministry for the Environment is working with The Forest Bridge Trust and other community partners to expand the use of CatchIT into rural communities in the Hotoe Catchment in North Auckland. The CatchIT Schools programme is already being successfully run in seven rural schools and will be expanded to include seven more schools over the next 3 years.

CatchIT Schools gives each student a variety of traps, teaches them and their parents how to use them, and supports the community in using the CatchIT system to record and celebrate results. Students engage in citizen science by experimenting to find out what bait and trap placement works best for each pest species. Students and their families become familiar with the risks that possums, stoats, weasels, ferrets, hedgehogs and rats pose to our native biodiversity, and become enthusiastic about reducing local pest populations through trapping. At the same time, the Forest Bridge project actively works with landholders to identify, prioritise and protect remnant areas of native forest.

The ultimate goals are to create a forest bridge for native species from coast to coast, improve the water quality in the Kaipara Harbour, and create an active community of environmental stewards on the land.

MAIN
Dylan Hunt proudly shows a weasel caught in one of the CatchIT schools programme traps.
Photo: Steve Hunt

INSET
Ship rat eating native snail.
Photo: Ngā Manu Images

Sir Peter Blake Youth EnviroLeaders' Forum



ABOVE
YELF 2017 delegates on Rotoroa Island. Photo: Brendon O'Hagan

BELOW
YELF 2017 delegates snorkelling at Goat Island Marine Reserve. Photo: Brendon O'Hagan

The Sir Peter Blake Youth EnviroLeaders' Forum (YELF) is a 1-week-long leadership development adventure for students who are passionate about the environment. Every year, YELF provides 55 Year 11–13 students with the opportunity to address topical environmental issues facing New Zealand.

This hands-on, youth-focused, experiential learning programme takes environmental education outside the classroom, allowing young people to connect with their environment in ways that inspire them to enhance and protect it. YELF also connects delegates with like-minded peers from across New Zealand and is designed to build the capability of our young

environmental leaders. On returning home, delegates are actively supported to make a difference and lead others in environmental activities in their own communities.

YELF is delivered in partnership by the Ministry for the Environment and Sir Peter Blake Trust. A key feature of YELF's enduring success is the collaborative approach that is used to plan and deliver the programme involving a wide range of science and conservation experts, government agencies, and iwi and community groups to expose delegates to a wide range of activities and perspectives. The behavioural change model that underpins YELF ensures that the programme evolves, is sustainable and provides value on investment, and includes:

- › Raising awareness about environmental issues
- › Understanding the reason for action and change
- › Enhancing the skills, confidence and knowledge to act
- › Inspiring and activating young leaders to take action
- › Reinforcing activities and behaviours after the programme.

Since 2003, YELF has inspired over 650 young New Zealanders to take action to enhance and protect our unique environment.



Objective 3

**Me kaha te hanga āheinga,
kia whai wāhi te tangata**

**Build capability and
capacity to engage people**



DOC ranger showing adults and children a crab during the Rocky Shore school field trip, Coast Road, Buller District. Photo: DOC

Objective 3

*Nā tō rourou, nā
taku rourou ka ora
ai te iwi*

*With your food
basket and my
food basket the
people will thrive*

Best practice in EEFS is underpinned by theoretical and practical evidence, and so will continue to evolve. We need to keep abreast of changes and development opportunities, both by evaluating what is working well in EEFS initiatives and through research. The support we provide in terms of professional development and resources needs to be kept up to date as our understanding of best practice evolves.

We need to remember that environmental education for sustainability is not something that only happens in schools. EEFS is about lifelong learning – people learning from each other and being empowered to apply this knowledge and understanding for a sustainable future. People will change their practices and behaviour at different stages in their lives. The provision of opportunities in diverse settings increases the likelihood that people will come to EEFS later without necessarily having had a foundation through schooling.

Reflecting this, ‘educators’ in EEFS are not only those who work in formal education settings such as schools, early childhood centres and tertiary institutes. There are also passionate people in the community, kaitiaki, NGOs, local government and many other organisations who are engaging New Zealanders in EEFS as part of their jobs or on a volunteer basis.

We need to recognise the important role that educators play and give them access to information on effective techniques. Based on our shared understanding of best practice in the New Zealand context, we need to provide practical information, tools and guidance that people can immediately apply in their roles.

Outcome for objective 3

Government agencies and our partners have people with the right knowledge and skills to effectively engage people in EEFS in New Zealand

KEY ACTIONS

Provide context-specific guidelines, tools and professional learning opportunities that support EEFS practice, including mātauranga Māori perspectives

We will co-develop context-specific guidelines and tools to enhance the knowledge and skills of those providing environmental education. We will encourage scientists and holders of mātauranga Māori to work in tandem and create space for Māori wisdom and knowledge to grow and better inform all New Zealanders.

Guidelines and tools will be developed for specific circumstances so that they are useful and resonate, making people more likely to put them into practice. We will encourage professional learning opportunities for environmental educators.

Support leadership in EEFS

We will support leadership across different sectors, including:

- › Encouraging iwi leaders to promote and build leadership and mentoring capability in environmental education amongst their iwi, hapū and whānau.
- › Identifying opportunities to encourage leadership and mentoring in local councils to enhance the environmental education of local communities.
- › Engaging with existing youth leadership programmes (for example UNESCO youth leadership) to learn how we can further promote youth leadership in environmental education.



Rere Rockslide – community action for water quality protection

Rere Rockslide in the Wharekopae River is an iconic local and tourist destination in the Gisborne area. However, in recent years, it has been threatened by poor water quality.

Local farmers want their children and grandchildren to be able to swim in the river, and they want to be good stewards of the land. Therefore, they have partnered with the Gisborne District Council, NZ Beef and Lamb and the Ministry for the Environment to identify ways to improve the water quality.

All of the farms in the upper catchment have participated and now have a Farm Environment Plan to identify good management practices on their land. The fencing of river margins and installation of an alternative stock water supply is now underway.

This project has empowered the community to take ownership of local freshwater outcomes. The local schoolchildren have also supported the project, working with their parents and encouraging visitors to care for the local environment.

MAIN

Rere Rockslide.
Photo: Arapaoa
Moffat (CC BY 2.0)

INSET

Having fun on the
Rere Rockslide.
Photo provided by
Gisborne District
Council

Supported by experts, farmers and their families undertake regular water testing to understand and act on changes in water quality and share their experiences of best farming practices.

Sustainable farming tools

Science and technology accelerates innovation and growth for intergenerational economic and environmental sustainability of the primary sector, leading to increased well-being for all New Zealanders.

Vision Statement from the Primary Sector
Science Roadmap – Te Ao Tūroa



Fertiliser is an essential part of farming operations but is often applied without fully considering soil fertility and nutrient requirements, often resulting in inadequate nutrient management and an increased risk of excess runoff into waterways and the sea.

The Ministry for Primary Industries is partnering with two major fertiliser companies in innovative Primary Growth Partnership (PGP) programmes to develop technology that will help farmers to enhance their nutrient management and enable more sustainable resource management.

The Clearview Innovations PGP programme led by Ballance Agri-Nutrients has developed a new precision aerial application technology called Spreadsmart™ that enables fertiliser to be automatically applied to targeted areas of the farm in the right quantities at variable rates. The Clearview programme has also developed decision support tools such as N Guru™ and MitAgator™ to help farmers plan and manage fertiliser application more efficiently and thus reduce leaching.

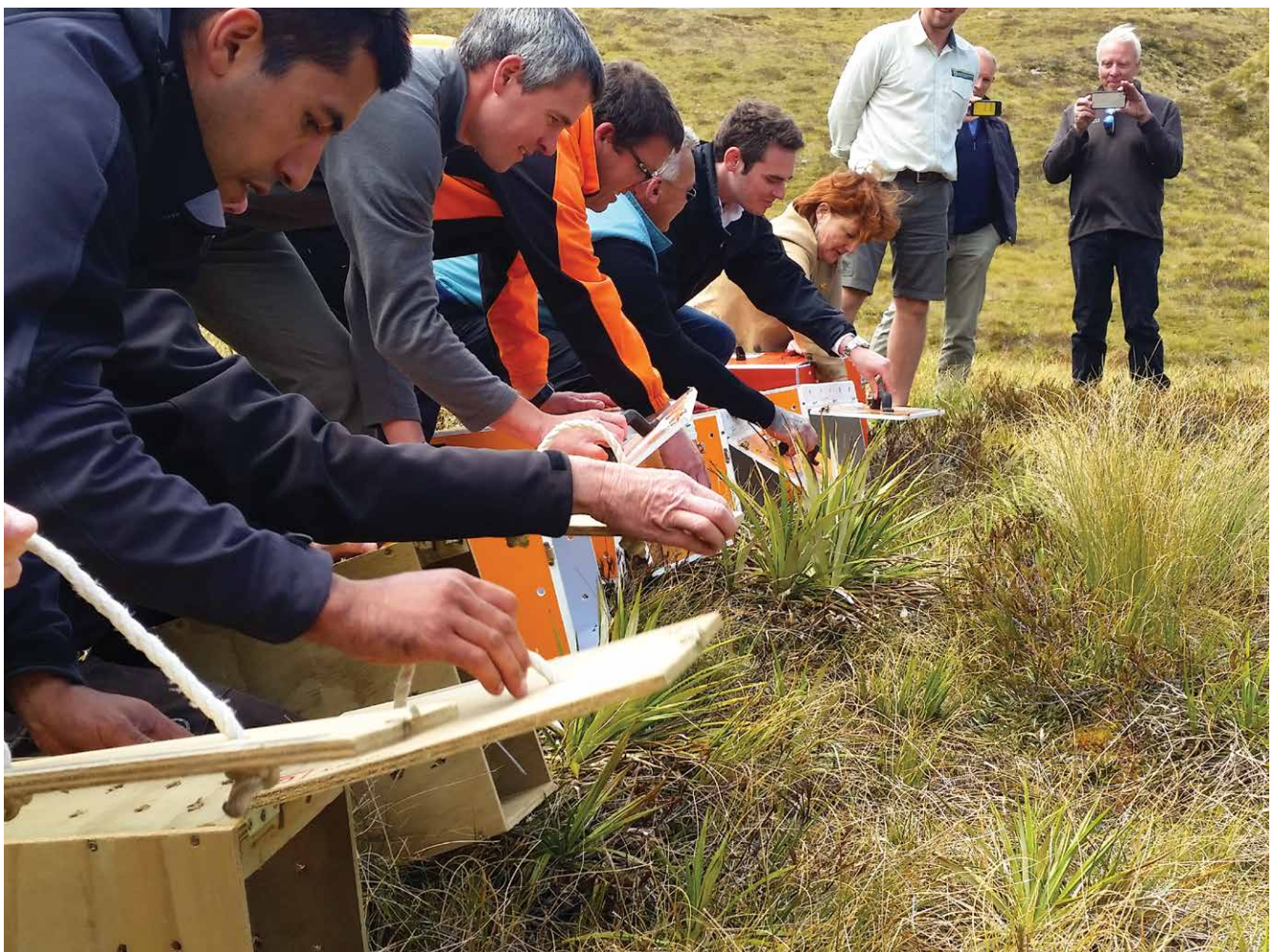
The Pioneering to Precision PGP programme led by Ravensdown aims to use novel remote sensing technology to produce farm maps for soil fertility and to incorporate these into targeted nutrient recommendations, including the identification of sensitive areas where no fertiliser should be applied, such as high run-off risk areas and waterways. These maps will be used to support automated variable rate application from aircraft, which Ravensdown has developed in conjunction with this programme.

The technology and education services that are being developed through these two programmes have the potential to not only protect the environment, but also improve pilot safety and reduce costs for farmers.

Objective 4

Me whakarite te ahunga whakamua o te mahere mahi me te ine i ōna pānga

Ensure progress of the Action Plan and measure its impact



Takahē release in the Murchison Mountains. Photo: Brent Beaven

Objective 4

Tungia te ururua, kia tupu whakaritorito te tupu o te harakeke

Clear the undergrowth so that the new shoots of the flax will grow

The first Action Plan for the EEfS Strategy recognises the need for effective systems and processes to champion environmental education for sustainability, monitor action plan delivery and understand the impact we are having.

All of these elements are critical to providing direction beyond 2021 and making sure our vision becomes a reality.

Minister Nicky Wagner with executive members of the Christchurch Multicultural Council Hero Modares (left), Manish Pandey and Surinder Tandon (President), Trees That Count planting at Tūhaitara Coastal Park on ANZAC Day. Photo: Melanie Seyfort (Trees That Count)



Outcome for objective 4

There is a sustained focus on our strategy and actions to ensure that we achieve the significant change we are looking for in the quality and reach of EEfS

KEY ACTIONS

Provide strong governance to ensure progress of the Strategy and Action Plan

We will establish an ongoing cross-sector governance group, in active partnership with iwi, to oversee the delivery of this Strategy and Action Plan, and to act as champions for EEfS.

This group will monitor the delivery of individual actions and will be responsible for refreshing this Action Plan to reflect what is being achieved and what should be the next area of focus. This group will also review and refresh the Strategy at key points to ensure that it reflects changes in priority or approach over the years. The governance group will update the key agencies and Ministers regularly on the work being undertaken and the outcomes being achieved.

Importantly, the group will act as ambassadors for EEfS, promoting it amongst their networks and across different sectors.

Develop measures that will highlight the impact of activities and demonstrate the success of the Strategy against the vision.

We will collaborate with a wide cross-section of those engaged in EEfS to develop key outcomes measures to assess progress towards our vision and indicate whether we are achieving the step-change in EEfS that we are aiming for.

Engaging the community with coastal biodiversity

Several government agencies have been working with the University of Otago's New Zealand Marine Studies Centre to help citizens learn about and protect coastal resources.

This citizen science initiative, known as Marine Metre Squared (MM2), helps communities to participate in the collection of valuable scientific information about the animals and plants in New Zealand's marine environment through a variety of projects.

One such project is the Dunedin Sediment and Seashores project, which was driven by strong community concern about Port Otago's plans to deepen the shipping channel and the potential impact increased dredging would have on the local marine environment. Although Otago Harbour has been dredged since 1868, there is limited scientific evidence on how marine habitats are impacted by these activities.

The students and community collected baseline data on the biodiversity, distribution and abundance of rocky shore animals and plants and sediment levels around the shores of Otago Harbour, to monitor habitat changes over time. This information gave scientists an insight into where in the harbour sediment was building up, how species richness was affected by sediment cover and which species were more vulnerable to sediment build-up.

School students investigating the effects of dredging on Otago Harbour rocky shores. Photo: New Zealand Marine Studies Centre



The local schools were provided with a real-life context for learning, and an opportunity to develop and practice their science skills. Students also learned how to be critical, informed and responsible citizens in a society where science plays a significant role. The project raised their awareness of conservation issues, and created networks and opportunities for environmental action. Teachers learned as much as the students and said that it was excellent professional development for their science teaching.

The wider community was also involved. Parents attended the field trips and the sharing sessions, and community days involved families, local residents and those who made submissions against the resource consent to increase the dredging in the harbour. This project has provided an opportunity for community-led initiatives, and networking with scientists and marine educators has provided the opportunity for the sharing of knowledge.

The port company has shared summary reports on turbidity levels in the harbour, and has indicated that they would like to take a more active role in sharing information about the project with the community and scientific consultative groups.

In the long term, it is hoped that this project will enable community groups and schools to go beyond simply submitting data to using it as a tool to engage in wider environmental issues and community-engaged science.

Toimata Foundation

The kaupapa (philosophy) of Toimata Foundation is sustainability through learning to bring about a healthier, more peaceful and more equitable world through creativity and action.

Collaborative and intergenerational projects are a priority for Toimata Foundation, which focuses on enabling rich opportunities for everyone to share and to learn. Ecosystem restoration, ecological building, traditional navigation, renewable energy, rongoa Māori and sustainable food production are just some of the learning and action projects taking place under the two main programmes EnviroSchools and Te Aho Tū Roa, which are run in collaboration with the founding partner Te Mauri Tau.

Te Aho Tū Roa supports kōhanga/puna reo (early childhood), kura (primary school), wharekura (secondary school) and hāpori (community) learning through Te Reo Māori. It is a kaupapa that is grounded in Māori culture, language and wisdom. Te Aho Tū Roa is the cord that connects and sustains us, joining us to those who have gone before and to those who will come after us.

EnviroSchools is an action-based education programme where young people plan, design and implement sustainability projects, and become catalysts for change in their communities. The network includes early childhood centres, as well as primary and secondary schools. From small beginnings in Waikato, EnviroSchools is now a nationwide movement for change.

The Te Aho Tū Roa and EnviroSchools networks embrace over 1000 educational settings and communities through a partner network of over 100 organisations. Co-funding by local government, private and business trusts, and the Ministry for the Environment enables this reach. Toimata Foundation values its strong relationships with iwi, community groups, local and central government and businesses.

These programmes allow young people to connect with their communities and local environment to explore issues, creatively express their ideas and make changes that are relevant for them. Through combining old wisdoms, new technologies, science, creative arts and social entrepreneurship, sustainability can emerge

LEFT

Toko School, in the heart of Taranaki, is tracking its EnviroSchools action-learning journey with a visual display for all to see, including a school map, an awa and a photographic journey. Photo: Toimata Foundation

RIGHT

Tuākana (youth facilitators) during a 5-day experience on *Hinemoana* – a Polynesian voyaging waka – as part of Te Aho Tū Roa. Photo: Rawhitiroa Photography



Mātauranga Taiao mo nga mahi whakauka – Nga wehenga

Environmental education for sustainability actions

The Department of Conservation, the Ministry for the Environment and the Ministry of Education are jointly leading this Strategy and Action Plan. If you would like further information about any aspects of the strategy and actions in this document, please contact the agencies through eefs@doc.govt.nz.

OBJECTIVES

ACTIONS

Objective 1

Celebrate success to raise awareness and demonstrate value

Celebrate exemplary practices and partnerships

Leverage existing programmes

Objective 2

Strengthen networks to foster collaborative action

Develop our understanding of what makes existing kaitiaki and EEFS networks successful

Use new and evolving ways to connect

Strengthen and widen networks amongst those involved as kaitiaki and with EEFS

Objective 3

Build capability and capacity to engage people

Provide context-specific guidelines, tools and professional learning opportunities that support EEFS practices, including mātauranga Maori perspectives

Support EEFS leadership across different sectors

Objective 4

Ensure progress of the Action Plan and measure its impact

Provide strong governance to ensure progress of the Strategy and Action Plan

Develop measures that will highlight the impact of activities and demonstrate the success of the Strategy against the vision

*Manaaki whenua, manaaki
tangata, haere whakamua!*

*Care for the land, care for
people, go forward!*

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COVER IMAGE: Planting at the launch of the Kids Greening Taupō programme. Photo: Kids Greening Taupō

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